

## **ABSTRACT**

The present inventions relate to novel ionic liquids comprising a Lewis acid anion such as  $\text{Al}_y\text{R}_{3y+1}$  wherein  $y$  is greater than 0 and R is independently selected from the group consisting of an alkyl group and halogen group. The cation of the ionic liquids can be selected from ammonium, sulfonium, and phosphonium cations wherein said cation generally has less than 14 total carbon atoms. The anion may contain an organic bridge to bond neighboring aluminum atoms that would otherwise be susceptible to leaching aluminum trichloride. The ionic liquids are useful in many applications and particularly as catalysts.